Ameren Missouri

Renewable Energy Standard Compliance Plan 2013-2015

Prepared in Compliance with 4 CSR 240-20.100

May 28, 2013

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Reference Table

Introduction

The Missouri Renewable Energy Standard (RES), codified at Sections 393.1025 to 393.1030, RSMo (Cum. Supp. 2011),[1] requires the investor-owned electric public utilities (IOUs) in the state (Ameren Missouri, The Empire District Electric Company, KCPL-Greater Missouri Operations Company and Kansas City Power & Light Company) to provide electricity from renewable energy resources that constitutes a percentage of the total retail sales that each utility makes to its customers in the state.

After an extensive rulemaking process involving stakeholders from the Missouri Public Service Commission (PSC), the PSC Staff, the Office of the Public Counsel, the Missouri Industrial Energy Consumers (MIEC), the Missouri Energy Development Association (MEDA), the four Missouri electric IOUs, various wind, solar and biomass developers, and other participants, the PSC published final rules on July 7, 2010.

One of the provisions in the PSC rules, 4 CSR 240-20.100 (7) (B), requires that each IOU file a plan that covers its intended compliance measures for the current year plus the immediately following two years.

There are two basic forms of compliance that are required under the RES. Compliance with what we term the "non-solar" RES relates to compliance using renewable energy credits (RECs) and/or actual energy that includes the REC from all forms of renewable generation resources (e.g., wind, hydro, biomass, etc.), as renewable energy resources are defined by statute.[2] There is a separate component, the "solar" RES that requires compliance which can only be met with solar RECs or actual energy that includes the REC from solar generation resources.

The following table details the renewables percentage requirements of the retail electric sales for the non-solar and solar RES:

Time Period	Non-Solar	Solar*
2011-2013	2%	2%
2014-2017	5%	2%
2008-2020	10%	2%
2021-forward	15%	2%

*(Solar percentages are applied to the non-solar RES amounts)

[1] Adopted by Initiative, Proposition C, November 4, 2008.
[2] The Missouri Department of Natural Resources (DNR) has the responsibility to certify that the resource meets the statutory definition.

As referenced above, the DNR is responsible for certifying all eligible renewable resources that can be utilized by the IOUs in meeting the requirements of the RES. 10 CSR 140-8.010 (2), contains the list of all eligible renewable resources allowed to meet the compliance with the RES.

Ameren Missouri's compliance with the RES, as demonstrated in this report, utilizes renewable resources as that term is defined by the statute, all of which have been certified as such by DNR.

In addition, the RES rules allow for the banking of RECs for up to a three year time period. This allows for the use of eligible RECs generated from January 1, 2010 to the current time period in meeting the RES requirements for calendar year 2013.

The RES provides that any generation and/or RECs from a Missouri renewable resource are entitled to be increased by a factor of 1.25 applied to each megawatt-hour (MWh).

The following information in this report will demonstrate the specific means through which Ameren Missouri intends to meet its obligations under both the non-solar and solar RES for the calendar years 2013-2015. A part of each section will provide the information required for each individual year.

Planned RES Compliance
Section (7) (B) 1 A

2013

Non-Solar RES

Ameren Missouri currently operates or has contracted for generation with the following eligible renewable resources:

- Keokuk Hydro-electric Generation Station
- Horizon Pioneer Prairie Wind Farm
- Maryland Heights Renewable Energy Center (Landfill Gas)

The Ameren Missouri Keokuk Hydro-electric Generation Station is located on the Mississippi River in Keokuk, Iowa. The station consists of 15 separate generators. The individual nameplate ratings range from 7.2 to 8.8 megawatts (MWs).

This generation facility is wholly owned by Ameren Missouri and has been operational since 1913.

In June, 2009 Ameren Missouri and Pioneer Prairie Wind Farm I LLC entered into a 15 year power purchase agreement. Ameren Missouri is purchasing 102.3 MWs of nameplate generation from the Pioneer Prairie Wind Farm consisting of 65 turbines, located in northeast Iowa. The facility site covers approximately 10,000 acres of land located in Mitchell County, Iowa in Wayne and Stacyville Townships.

On June 16, 2012, Ameren Missouri's newest generating station, the Maryland Heights Renewable Energy Center (MHREC), became commercially operational. This facility burns methane gas produced by the IESI Landfill in Maryland Heights, MO in 3 Solar 4.9 MW Mercury 50 gas turbines to produce electricity.

This facility generated 37,450 MWhs in calendar year (CY) 2012. In the following years, this facility is expected to gradually increase generational capabilities, reaching approximately 96,400 MWhs annually.

Banked RECs

In accordance with 4 CSR 240-20.100 (3) (F), which requires utilities to utilize a PSC designated central third-party registry for REC accounting, the North American Renewable Registry (NAR) was selected to be utilized by the IOUs in Missouri.

RECs from the above referenced generators, covering the 2010-2012 time periods, were registered and placed in the Ameren Missouri account with NAR.

Ameren Missouri
NAR Account
REC Balance

Period of Generation	Keokuk	Pioneer Prairie	MHREC
1/1/10-12/31/10	930,246	** [redacted] **	
1/1/11-12/31/11	910,448	** [redacted] **	
1/1/12-12/31/12	754,125	** [redacted] **	37,450

During CY 2013, Ameren Missouri anticipates that the Keokuk facility will add approximately 995,000 MWhs while Pioneer Prairie will add approximately ** [redacted] ** MWhs and the Maryland Heights Renewable Energy Center approximately 96,000 MWhs to the NAR account.

Planned Actions
For the 2013 compliance year, Ameren Missouri will utilize the generational output from the Keokuk and Pioneer Prairie facilities. Ameren Missouri will continue to place RECs into the NAR account associated with the actual 2013 generation from Keokuk, MHREC and the Pioneer Prairie facilities.

2013
Solar RES
During CY 2012, Ameren Missouri executed the following transactions adding to its solar bank:

Transaction	Vintage	Quantity S-RECs
Gainesville Regional Utilities	2012	5,000
	2013	5,000

The above quantities of solar RECS (S-RECs) have also been placed into Ameren Missouri's NAR account except for the 5,000 S RECs vintage CY 2013 which will be transferred by the 1st quarter of 2014.
In conjunction with the above purchases, in late 2010, Ameren Missouri completed the installation of approximately 100 kilowatts (kW) of solar generation capacity at its headquarters facility located in St. Louis.

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This multi-technology installation produced 104 MWhs of solar generation in CY 2012. In accordance with Section 393.1030 RSMo, this generation is entitled to the 1.25 factor for a Missouri facility such that the S-RECs are equivalent to 130 MWhs. All generation from this facility will be utilized toward the solar requirements of the RES.

In addition, Ameren Missouri filed a Standard Offer Contract tariff with the PSC in November, 2011. This tariff became effective on January 1, 2012. Under the terms of the tariff, Ameren Missouri bought S-RECs from its electric customers who installed or are installing net metered solar facilities (100 kW or less) at their homes and/or businesses. The price per S-REC was $50 and the program was funded to a total of $2.0 million. The program was fully subscribed in 2012. Based on the success of the program a revised tariff was filed in November 2012 with additional funding of $1.0 million to continue the purchase of S-RECs from customers during the 2013 calendar year. Due to various factors influencing pricing for installations, the price per S-REC has been reduced to $5.

All S-RECs associated with the customer installed net metered systems, as well as the generation at the Ameren Missouri headquarters facility are entitled to the 1.25 factor as they represent Missouri based generation.

Through December 31, 2012 Ameren Missouri had acquired 2,851 S-RECs in CY 2012 which will count as 3,564 due to the in-state factor.

Planned Actions

For the 2013 compliance year Ameren Missouri will use S-RECs that have been banked through purchases from SunEdison, Gainesville Regional Utilities, Orlando Utilities and 3 Degrees.

During CY 2013, Ameren Missouri will continue its evaluation of a potential utility scale solar generation project. Cost, construction potential, siting and permitting requirements, etc., will be evaluated in order to determine future options in meeting the solar RES requirements.

Throughout the calendar year, Ameren Missouri will continue to accept and evaluate unsolicited proposals from solar developers.

2014

Non-Solar RES

Ameren Missouri will continue to generate renewable energy and bank the associated RECs from the Keokuk Hydro-electric Generation Station, the Maryland Heights Renewable Energy Center and the Horizon Pioneer Prairie Wind Farm.

Banked RECs

During CY 2014, in addition to the expected 96,400 MWhs of generation from the MHREC, Ameren Missouri anticipates that the Keokuk facility will add approximately 995,000 MWhs while Pioneer Prairie will add approximately ** [redacted] ** MWhs to the NAR account. All amounts associated with generation from the MHREC are eligible for the 1.25 factor as these MWhs come from a Missouri resource.

Planned Actions

For the 2014 compliance year, Ameren Missouri will continue to draw upon its bank of RECs that it will have accumulated through the contributions from generation at Keokuk, Pioneer Prairie and the MHREC.

2014

Solar RES

The combination of generation from its solar installation at the company headquarters, along with customer and third party procured S-RECs represents the basis by which Ameren Missouri intends to meet its solar compliance requirements for CY 2014.

Should the results of the company analysis from 2013 justify construction, Ameren Missouri may begin construction of a utility scale solar generation station in the spring of 2014. If this project is pursued, Ameren Missouri will issue a Request for Proposal (RFP) for an Engineering Procurement & Construction (EPC) contract in the 1st quarter of 2013. Based on those responses the company will decide how to proceed with potential construction. The facility could be fully operational by the 4th quarter of 2014.

2015

Non-Solar RES

In CY 2015, Ameren Missouri will be receiving full generation from the Keokuk Hydro-electric Generating Station, Pioneer Prairie Wind Farm and the MHREC landfill gas generating facility.

Banked RECs

During CY 2015, Ameren Missouri anticipates that the Keokuk facility will add approximately 995,000 MWhs, Pioneer Prairie will add approximately ** [redacted] ** MWhs and the MHREC will add approximately 96,400 MWhs of generation to the NAR account. The generation from the MHREC will have a factor of 1.25 applied since it is from a Missouri based resource.

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Planned Actions

For the 2015 compliance year, Ameren Missouri will continue to draw upon its bank of RECs that it will have accumulated through the contributions from generation at Keokuk, Pioneer Prairie and the MHREC.

2015

Solar RES

During CY 2015, Ameren Missouri will continue to use S-RECs acquired from customers under the previously issued Standard Offer Contracts as well as from generation from the solar installation located at its headquarters building. Should construction of a utility scale solar generation facility have taken place, then Ameren Missouri will also utilize the S-RECs from such generation. Generation from all such sources would be eligible for application of the 1.25 factor as all the facilities would be located in Missouri. The balance of needs would come from procurement of S-RECs through third party brokers regardless of whether a utility scale solar generation project is built by Ameren Missouri.

List of Executed Contracts
Section (7) (B) 1 B

The following provides a summary of contracts which are being utilized by Ameren Missouri to procure certified RECs as well as RECs with associated energy.

Non-Solar RES

Ameren Missouri has executed only one third-party contract (in 2009) associated with the purchase and delivery of renewable energy to the Ameren Missouri system that is being used to meet the non-solar RES compliance provisions. This is a 15 year power purchase agreement between Ameren Missouri and Horizon's Pioneer Prairie Wind Farm.

Solar RES

Ameren Missouri has executed purchase agreements during CY 2012-2013 whereby solar RECs have been procured to meet the 2012-2014 requirements.

Contracts have been executed with Gainesville Regional Utilities, 3 Degrees, Orlando Utilities, and Sun Edison.

Through year end 2012, Ameren Missouri executed 338 agreements with its customers who have installed small scale solar net metered systems and have chosen to accept the terms and conditions of the Standard Offer Contract. Additional contracts have been entered into with customers who install solar generation during CY 2013 under the terms and conditions of the exiting Standard Offer Contract tariff that became effective January 1, 2013.

A contract summary of all currently executed agreements that are being utilized to meet compliance with the provisions of 4 CSR 240-20.100 is included in **Table 1** attached.

Projected Retail Sales
Section (7) (B) 1 C

The attachment in **Table 2** demonstrates the current forecasted total retail electric sales by year and the corresponding portfolio requirements in MWhs for both the non-solar and solar RES.

Comparison to Preferred Resource Plan
Section (7) (B) 1 D

The RES Compliance Plan detailed in this report mirrors the renewables plan in the 2011 Integrated Resource Plan (IRP) filed by Ameren Missouri on Feb. 23, 2011. The compliance actions listed in this RES Compliance Plan demonstrate the continuous planning addressed in the IRP regarding the potential for developing an Ameren Missouri owned solar generation facility.

Ameren Missouri has begun an engineering review and study to assess the economic and operational aspects of utility scale solar generation at one of its existing power plant sites. Should the results of that study indicate that such a project is warranted, Ameren Missouri could potentially have such a facility operational by early 2014.

RES Compliance Plan Cost
Section (7) (B) 1 E

The ability to utilize renewable resources that are currently included in rate base places Ameren Missouri and its ratepayers in a unique position regarding compliance cost. As provided in the RES statute and rule, though the megawatt-hours from these renewable resources can be utilized to meet the compliance requirements, some costs were incurred prior to the effective date of the compliance requirements and are already included in the current rate base. Consequently, these renewable resources will result in no cost impact to the plan and will not be included in the rate cap limitation of 1%.

The cost of the RES Compliance Plan for 2013 is therefore comprised of the following items:

Purchase of solar RECs from third parties
Purchase of solar RECs from residential and commercial customers
Issuance of solar rebates
Purchase of RECs and power from Horizon Wind
Gas supply agreement with IESI
Cost to register RECs with the North American Renewable Registry

Details related to the cost of each component are included in **Table 3**.

Third Party Solar REC Procurement

The market price for solar RECs varies significantly across the continental U.S. ($2.75-$7 per REC). Ameren Missouri's procurement of solar RECs to meet the requirements of the RES, at an average price of ** [redacted] ** per solar REC, represents the least cost basis for meeting the compliance requirements at the current time. Due to the limited amount of solar RECs from customer installations and the Ameren Missouri installation at its headquarters facility, the procurement of solar RECs from third party marketers also represents the primary means in which to meet the compliance requirements.

Standard Offer Contract

The price per REC ($5 per MWh) offered under the Ameren Missouri Standard Offer Contract was determined by taking into account the total cost to install solar facilities in the region, the rebate required by statute and the eligibility for the federal tax credit. Total funding for the program is capped at $1.0 million.

Solar Rebates

Solar rebates are required by statute at $2.00 per watt and are limited to an individual maximum of $50,000. The number of rebates issued through December 31, 2012 totals 403 and the cost of those rebates was $8,945,000. Rebates issued since the requirements began under the MoRES total $12,397,088 through December 31, 2012.

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Ameren Missouri Headquarters-Solar Installation

Construction of a multi-technology solar array was completed in December, 2010. The primary objectives for this installation are to:

- Provide customers with accurate cost data for the various technologies
- Determine operational efficiencies between the technologies
- Familiarize Ameren Missouri personnel with operational information related to solar generation
- Utilize generation to help meet the solar RES requirements

Because the basic technologies employed for solar generation are the same whether used for residential or utility scale projects, the information that will be provided by this installation regarding capital, maintenance, labor, installation and other operational costs will prove beneficial in determining any advantages in constructing a utility scale generation project to meet the compliance requirements.

REC Registration Fees

In accordance with 4 CSR 240-20.100 (3) (F), utilities are to use a PSC designated common central third party registry to account for RECs used to meet the RES requirements. The North Ameren Renewable Registry was selected by the commission for this purpose.

Tracking and registration fees are charged by NAR for all RECs deposited and then retired from the utilities' accounts. This administration cost is detailed in **Table 3** attached.

The actual total operations and maintenance (O&M) and capital costs incurred for compliance with the RES during CY 2010-12 and projected for 2013-15 are detailed in **Table 3**.

During CY 2012, final capital costs associated with the Maryland Heights Landfill Gas project were incurred along with the first operational and maintenance costs. The first gas delivery charges were also incurred in CY 2012. Those costs have been estimated for CY 2013 through CY 2015 and included in **Table 3**.

Calculation of the RES Retail Rate Impact Limit

Section (7) (B) 1 F

Ameren Missouri has developed a model that provides a 10 year projection for the cost of compliance with the RES. This spreadsheet model utilizes information from the latest integrated resource plan as inputs to aid in providing guidance on the timing, scale and type of renewable resources that would meet the duel requirements of the RES standard. The assumptions used in this model include information regarding current operations of Ameren Missouri resources and their projected operations going forward, along with an assumption that all additional non-solar requirements that are not explicitly accounted for in the model will utilize Ameren Missouri owned wind resources for compliance. Additionally all solar compliance needs not explicitly accounted for in the model will utilize Ameren Missouri owned solar PV resources for compliance. These assumptions were used in the calculations for timing and scale of resources and were needed to solve for a projected compliance plan. Actual compliance decisions may be made with information not available at the time the model is developed and may result in a different method of compliance.

This model, attached as Table 6, has calculated the following Retail Rate Impact, as limited by the 1% restriction, for 2013, 2014 and 2015:

2013 – 0.68%
2014 – 0.84%
2015 – 0.82%

The model calculated the following Retail Rate Impact limit for 2013, 2014 and 2015:

2013 – ** [redacted] **
2014 – ** [redacted] **
2015 – ** [redacted] **

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Compliance with Air, Water or Land Use Requirements

Section (7) (B) 1 G

All generating facilities utilized by Ameren Missouri to meet the requirements of the Missouri Renewable Energy Standard have been certified by the Missouri Department of Natural Resources in accordance with 10 CSR 140-8.010 (4).

Table 1
List of Executed Contracts

Ameren Missouri
Renewable Energy Compliance Plan
2013-2015
Executed Renewable Energy Contracts

Contracting Party	Resource Type	Contract Type	Contract Duration	Time Period	Expected Amount	Terms
Horizon Pioneer Prairie	Wind	Energy & RECs	9/1/09-8/31/24	2013	[redacted]	Deliveries of energy and RECs began 9/1/09
				2014		Term is 15 years with option to extend
				2015		based on mutually acceptable terms and conditions.
Sun Edison	Solar	REC only	1 year	2012	337	Vintage 2012 solar RECs
3 Degrees	Solar	REC only	1 year	2013	3,500	Vintage 2013 solar RECs expected delivery on or before October 15, 2013
Gainesville Regional Utilities	Solar	REC only	1 year	2012	5,000	Vintage 2012 solar RECs
				2012	6,500	Vintage 2013 solar RECs expected delivery on or before April 15, 2013
				2013	5,000	Vintage 2013 solar RECs expected delivery in 2013
Orlando Utilities	Solar	REC Only	1 year	2011	2,288	Vintage 2011 solar REC's
				2012	6,537	Vintage 2012 solar REC's
Various Residential and Commercial Customers	Solar	REC only < 10kW	10 year	2013	2,647	Customers installing solar electric systems that are sized less than 10 kW may sell S-RECs for $5 per REC on a 10 year up front basis. The number of RECs is calculated based on system size applied to an industry calculator :PVWatts
				2014	2,647	
				2015	2,647	
Various Residential and Commercial Customers	Solar	REC only from 10kW but <25 kW	5 year	2013	2,134	Customers installing solar electric systems that are sized greater than 10 kW but less than 100 kW may sell S-RECs for $5 per REC on a 5 year basis based on actual generation from their metered output.
				2014	2,134	
				2015	2,134	

Note: All S-RECS procured from customers are entitled to the additional factor of 1.25
Expected amounts from customers for 2013-2015 anticipate continued participation by customers with the Standard Offer Contract tariff.

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Table 2
Forecasted Retail Electric Sales
And RES Requirements

Ameren Missouri
Projected Retail Electric Sales
Missouri Renewable Energy Standard

Year	Customer Forecast (MWh) Total Load	Renewable Requirement (%)	Renewable Requirement (MWh)	Solar Requirement (%)	Non-Solar Renewables Requirement
2013	36,906,392	2	738,128	14,763	723,365
2014	36,852,292	5	1,842,615	36,852	1,805,762
2015	36,829,018	5	1,841,451	36,829	1,804,622

Table 3
RES Compliance Plan Cost
Actual and Projected
2010-2015

	Actual			Projected		
O&M Expenses	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Solar Rebates	$487,782	$2,964,306	$9,056,840	[redacted]		
S-RECS						
3rd Party Brokers	$98,148	$114,800	$27,500	[redacted]		
Broker Fees	$1,678	$2,314	$825			
Customer Supplied RECS	$0	$1,008,700	$862,856	$1,000,000	$1,000,000	$1,000,000
NAR Fees	$5,277	$243,429	$135,739	$150,000	$175,000	$200,000
Pioneer Prairie Wind*	$5,893,920	$5,760,780	$6,381,320	[redacted]		
Maryland Heights Landfill Gas						
Fuel	$0	$0	$1,088,996	$3,085,000	$3,270,000	$3,270,000
O&M	$0	$0	$276,101	$803,000	$803,000	$803,000
Total O&M Expenses	$6,486,805	$10,094,329	$17,830,177	$19,714,500	$19,950,000	$19,975,000
Capital Projects						**Total Capital**
GOB Solar	$1,539,240	$283,471	$0	$0	$0	$0
Maryland Heights Landfill Gas	$15,264,989	$27,768,002	$11,566,676	$0	$0	$0
Total Capital	$16,804,229	$28,051,473	$11,566,676	$0	$0	$56,422,378
* Note: [redacted]						
Costs on this table do not include interest charges.						

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Table 4
Preferred Resource Plan Summary
2013-2015

Year	Generation Resources	Resource Type	Solar Resources
2013	Keokuk	Hydro	Customer Owned
	Pioneer Prairie	Wind	Ameren GOB
	Maryland Heights	Landfill Gas	Third Party
2014	Keokuk	Hydro	Customer Owned
	Pioneer Prairie	Wind	Ameren GOB
	Maryland Heights	Landfill Gas	Third Party
2015	Keokuk	Hydro	Customer Owned
	Pioneer Prairie	Wind	Ameren GOB
	Maryland Heights	Landfill Gas	Third Party

Table 5
RES Compliance Plan Summary
2013-2015

Year	Generation Resources	Resource Type	Solar Resources
2013	Keokuk	Hydro	Customer Owned
	Pioneer Prairie	Wind	Ameren GOB
	Maryland Heights	Landfill Gas	Third Party
2014	Keokuk	Hydro	Customer Owned
	Pioneer Prairie	Wind	Ameren GOB
	Maryland Heights	Landfill Gas	Third Party
		Solar	Potential for Ameren Missouri owned utility scale
2015	Keokuk	Hydro	Customer Owned
	Pioneer Prairie	Wind	Ameren GOB
	Maryland Heights	Landfill Gas	Third Party
		Solar	Potential for Ameren Missouri owned utility scale

TABLE 6
IS HIGHLY CONFIDENTIAL
IN ITS ENTIRETY